

Digitalisation Strategy and Action Plan 2021

Executive Summary

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This document explains how our Digitalisation Strategy has evolved this year and how our Digital Operating model is adaptive, dynamic and designed for growth.

Since publishing our baseline Digital Strategy consultation in 2019, we have fully embedded feedback responses from across our supply chain, employees and most importantly the groups that represent our customers. We would like to emphasise how essential our customers' voices are in the development of the commitments and activities that make up this document, our 2021 Digitalisation Strategy and Action Plan.

We are extremely supportive of everything the Energy Data Taskforce (EDTF) stands for, and we recognise the role we must play in the rapidly evolving energy sector. Throughout 2020, we have advanced from a position of aligning our work with specific EDTF recommendations, to thinking and planning beyond EDTF. In this document, you will see how we are doing this – in 2021 we will prioritise Data Engineering and Dev Ops capacity and capabilities development, to sit alongside Analytics, forming our inaugural Digital Group.

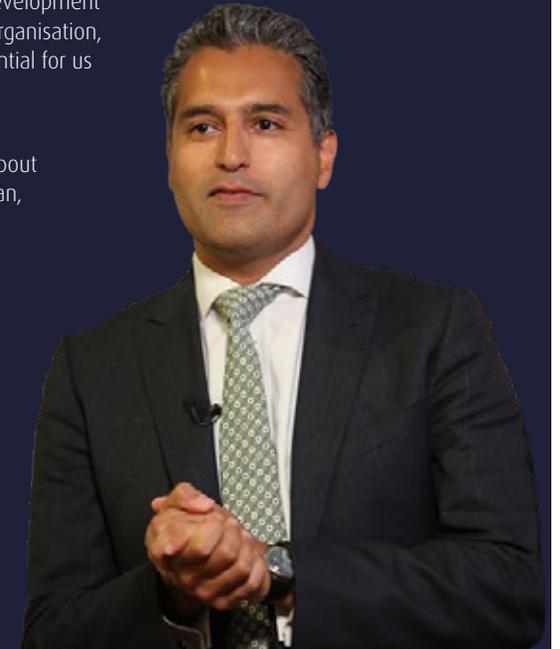
Our main lesson learned from 2020, influenced in the reaction to the global pandemic, is that we believe our success with digital is dependent upon the quality of our leadership. We cannot predict the future, and rather than bet on any one approach or technology, we are ensuring that we are set up to continuously listen to, and to understand, our end users' needs, and to be able to respond to those needs quickly and effectively. This is the heart of our approach to Digitalisation.

From the momentum gathered from the development of new norms in 2020, our leaders will be empowered to make sure our Digitalisation Strategy and Action Plan is meaningful to them, with concrete activities and measurements.

For some years now, we have led the discussion on the likelihood that a DNO's employees need to adopt skills and ways of working that are not established in our sector. Now that the sector is aligning as a consequence of EDTF, we are leading that discussion in terms of introducing novel partnerships, driving collaboration and developing external communities using Open Innovation principles, alongside the development of "centres of excellence" within our organisation, where there is further unrealised potential for us to discover and nurture.

We are keen to hear your feedback, if you have a question or comments about our strategy, performance or action plan, please do not hesitate to contact us. You can contact us via: digital@ukpowernetworks.co.uk.

Suleman Alli
Director of Strategy
and Customer Service



Introduction

Digital is a core part of how we run our organisation

We treat Digital with the same ambition and discipline as any other part of the business – with detailed plans and performance expectations that map directly from our vision and business strategy to be:

An employer of choice

A respected and trusted corporate citizen

Sustainably cost-efficient

We describe UK Power Networks as having a performance driven culture delivered within a set of values. Digital is about enhancing our business performance to do things safer, greener, fairer, better and more efficiently.

Customers and employees at the heart of our Digitalisation Strategy and Action Plan

We believe there is no point designing Digital plans unless they are ultimately going to make a difference to our customers, stakeholders and employees. By designing our work around the customer's experience or stakeholder view of our products and services, we will serve the energy market more holistically – as explained in section 4 on our view on data personas. The knowledge and learnings gained facilitate our continual cycles of iteration and improvement.

We have taken these principles and applied them in our Digital Strategic Framework (see **Figure 1** on page 3) – which has refined since our Digital Strategy publication last year but remains focused on four unchanged digital focus areas.

These four user communities enable us to focus discussions with our internal and external colleagues, customers and stakeholders and importantly, help make sure we do not leave any user community behind as we seek to deliver Digital benefits.

Customers



Employees



Assets & Operations

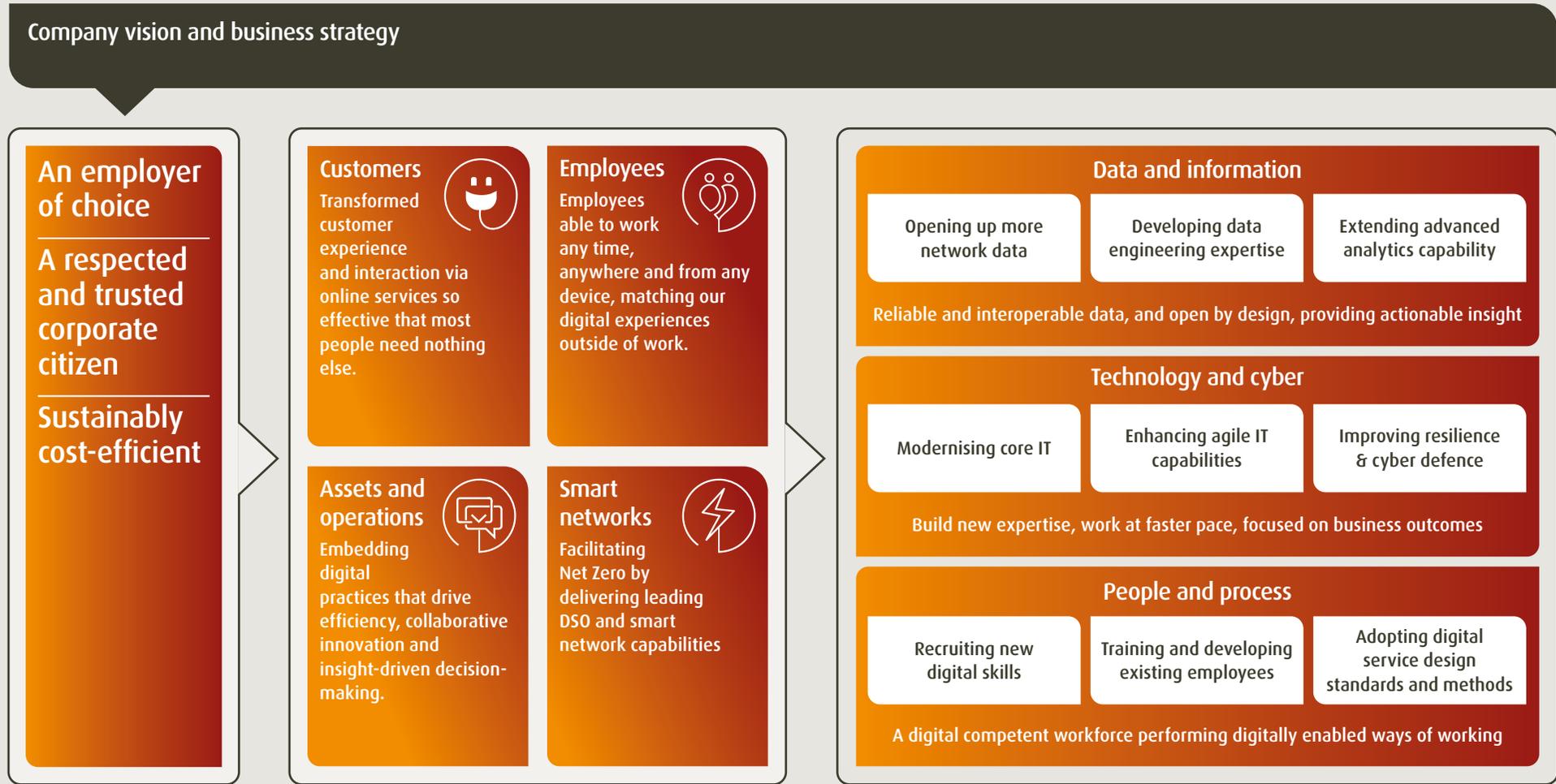


Smart Networks



Introduction continued

Figure 1. UK Power Networks Digital Strategic Framework



Introduction continued

Implementing our Digital Strategic Framework

Since publishing our Digital Strategy in December 2019, we prioritised and accelerated capacity and capability development for analytics. This directly built upon benefits of early experimental work by the newly formed analytics team, resulting in a 22:1 return on investment in the first year of this team's operations. Our lessons learned directly shape how our 2021 Digitalisation Strategy and Action Plan provides stepping stones to deliver against our Digital Strategic Framework, shown in **Figure 1**.

In practice, this means all activities in our 2021 digital initiatives are organised under the three following headings:

1. Data and Information

In 2021, we will continue to explore, examine and unlock value from our data with particular emphasis placed on strengthening the enabling data foundation. We will enhance our data infrastructure and data engineering capabilities to integrate, store and open up increasingly reliable and interoperable data. These developments aim to support new and developing use cases for both internal and external stakeholders, mapped to our data personas (explained in the **Our view on data personas** section), meeting the evolving needs of the rapidly decentralising, decarbonised and dynamic energy system.

2. Technology and Cyber

In 2021, we will deliver a portfolio of specific technology projects prioritised with the business and based on feedback from our stakeholders. Maximum impact and shortened time-to-value will be achieved through applying high-pace, coordinated IT development, operations and engineering activities.

By adopting a 'Dev Ops' culture (combining software development and IT operations) to drive continuous iterative delivery – along with the corresponding practices and tools – our IT delivery teams gain the ability to better respond to customers' changing needs. This will increase confidence in the digital solutions we build, and achieve targeted outcomes sooner whilst maintaining security and resilience.

3. People and Process

In 2021, we will create working conditions where our colleagues can be increasingly curious and explore potential digital scope and solutions, advancing the wholesale digital transformation of our people and ways of working that we have already started. We will extend successful service design methods from our experiences so far, sharing and adopting best practice techniques that we can adapt and apply to address specific customer and stakeholder needs.

We will also continue to extend and augment the digital capabilities of our workforce, recruiting in new digital capabilities, upskilling existing employees and partnering with leading experts to develop a truly digital workforce.

Digital Operating Model, 2021

To reach an enduring Digital Operating Model, we need each part of our Digital Strategic Framework shown in **Figure 1**, to substantively advance in 2021. Whilst our Digital Strategic Framework is intended to remain stable for the years ahead, we expect our Digital Operating Model to dynamically adapt with our experiences, new trends and the evolution of our customers' and stakeholders' needs.

Through extensive research and exploration of what leading, digitally enabled companies across all sectors of industry have implemented and how they operate, we know what best practice looks like and how it applies to our business. Consequently, we have established the following key principles to frame our **Digital Operating Model**. We will:

- Establish data as the foundation to a future-proof digital core, employing modern systems that accelerate delivery.
- Differentiate between core 'IT' and Digital Technology, developing a delivery model focused on flexibility and speed.
- Rethink the role of technology with a focus on delivering value, governing through a small group that holds everything together.

In adopting these principles, we need to transform the way in which we think about data and delivery of improvements, moving away from thinking about IT project / programme management, to how we deliver future-proof digital capabilities.

We have listened to the lessons learned by others and we are confident we will avoid the mistakes of so many other organisations taking relatively fixed long-term bets with an assumed low level of uncertainty, e.g. implementing stand-alone digital solutions based on a narrow view of what they think customers will want in the future. At the same time, we recognise that whilst it is not possible to predict the future, the most effective mitigation for digital disruption is to build digital capability that allows us to remain flexible, operating in an agile manner to adapt and respond in line with market developments.

Introduction continued

With this in mind, we have defined a Digital Operating Model for 2021 that enhances and focuses capabilities in three key areas – Advanced Analytics, Data Engineering and Dev Ops – shown in **Figure 2**. This forms the basis of our inaugural Digital Group.

In 2021 we will prioritise and accelerate the development of our Data Engineering and Dev Ops capabilities, establishing the ‘Digital Group’ as the principal delivery mechanism for digital projects on behalf of our user communities. The ‘project roadmaps’ for each user community are introduced below and displayed in **Appendix 1: Timeline view of our 2021 Digital Action Plan**:

- **For our customers:** In 2021 focusing on enabling industry-leading access to self-service digital solutions and network data and information.
- **For our employees:** In 2021 focusing on delivering seamless, intuitive, highly-tailored digital solutions for field-based and back office functions alike.
- **For our assets & operations:** In 2021 focusing on advanced data capture, modelling and decision-making capabilities.
- **For our smart networks ambitions:** In 2021 focusing on enabling leading network visibility and automation.

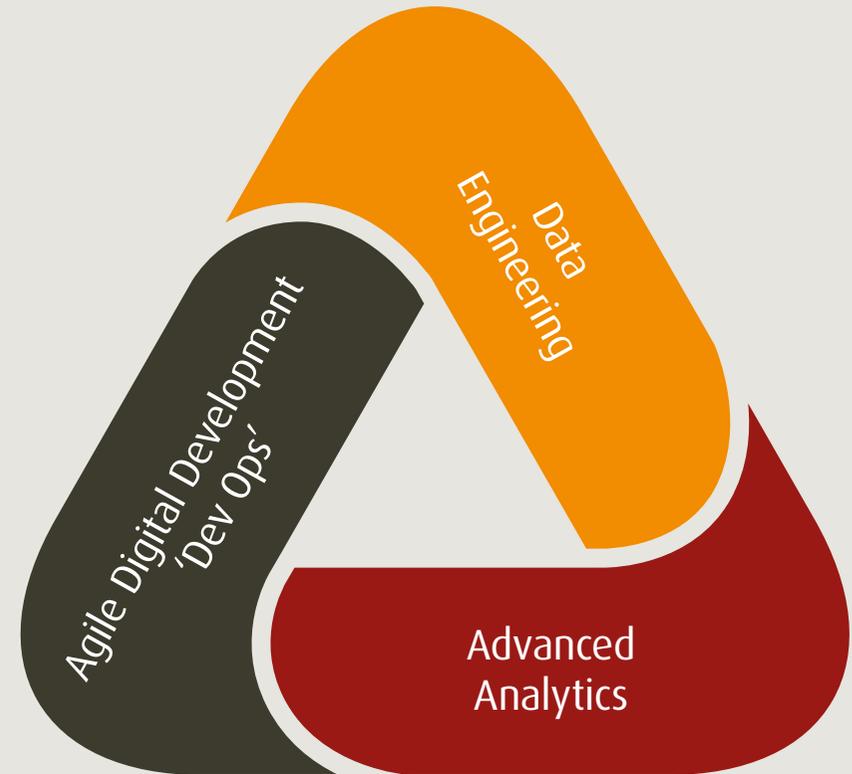
Building from Advanced Analytics

We took the first step towards our Digital Operating Model in mid-2019 when we created from scratch, an internal analytics team that evolved into Advanced Analytics and Decision Sciences capabilities. We went first with analytics to prove the concept for emerging digital topics that are now thoroughly covered by our Digitalisation Strategy and Action Plan. Analytics was purposely selected to pilot and demonstrate success in digital methods that we are now promoting more broadly.

We hired individuals who think differently, who had never worked in utilities and who ideally had never worked in the electricity sector before, as we believe they have completely unencumbered mind-sets to address long standing opportunities with fresh approaches. We harnessed their curiosity and skills to help us continue to push the envelope and achieve beyond expectations within the first year.

Our efforts in 2021 with Data Engineering and Dev Ops will follow on from our success with Advanced Analytics capabilities and we will aim to reach equivalent in-year impact and maturity for Data Engineering and Dev Ops.

Figure 2: Digital Operating Model for 2021



Delivering the Energy Data Taskforce (EDTF) recommendations

EDTF – our catalyst for a step change

We respect and admire the direction set by the EDTF and the important stimulus it has provided since publication in establishing a common direction, providing a much-needed catalyst for the sector.

UK Power Networks fully supports the opening up of energy system data to deliver evidence-based insights and decision support to drive outcomes for our stakeholders and the communities we serve. We are therefore advancing our efforts in fulfilling the recommendations defined by the EDTF as expediently and holistically as possible, targeting increased agility, innovation and effectiveness in the delivery of our services.

Through our efforts to meet EDTF requirements in this way, we have truly realised the change ahead is a fundamental step change, with profound knock-on effects to the products and services we provide. We will explain exactly what we mean in the remainder of this section.

Our starting point

Like all other network operators, our enterprise data landscape is one that has evolved over decades under the influence of predominantly internal as well as regulatory and legislative drivers. The fundamental shift to ‘open data’ necessitates investment in our human and technological capabilities to develop mature data management practices. We are focused on the effective fulfilment of three imperatives: **reliability**, **accessibility**, and **interoperability**, whilst not compromising security and resilience.

We are well placed to meet this challenge having invested heavily through RII0-ED1 in our core IT and digital capabilities, improving data quality throughout the organisation – from data creation and capture through to application and analysis.

This journey continues at pace as we look to further advance our data management capabilities to broaden and strengthen our data services for specific purposes such as:

- Developing enhanced services and digital product experiences for our customers;
- Providing scientific insights into our network and opportunities to connect new load, generation and storage;
- Enabling market participation and competition through transparency;
- Driving enhanced performance through data-driven improvement plans; and
- Increasing business efficiency through evidence-based decision support.

Our understanding of the scale of the challenge

The challenge in satisfying EDTF recommendations is very broad, from extensive development of data governance, management and engineering practices along with the introduction of new capabilities, processes and information systems. Most prominently, the term “presumed open” makes the EDTF recommendations a highly pertinent discussion point requiring creative ideas for implementation. In practical terms, those actions entail alignment of multiple teams, technologies and processes, and the coordination of multiple simultaneous projects to help us authentically achieve “presumed open”.

More significantly in our view, it involves balancing conventional business needs and constraints against the aspirations of ‘Open Energy’ and the expectations of a potentially limitless external data consumer community.

As with any long-term and large-scale challenge in our organisation, we use governance and structure to break down massive goals into precise and coordinated deliverables. This helps us continue to develop and provide leading services through digital methods, whilst contributing to the broader societal benefits that Open Energy presents in a planned, deliberate manner.



Delivering the Energy Data Taskforce (EDTF) recommendations

continued

Figure 3: From:To, how we are structuring our approach to go beyond EDTF

From	To
Closed	Open
Best endeavours	Governed co-ordination
Small groups	Critical mass
Success on your own	Common direction and collective success
Possessive over IP	Federated sharing of knowledge and solution
Legacy-driven framing and regulatory design	Operating in a wider ecosystem beyond the regulatory framework
Occasional informal learning from others within a sector	Substantial and scheduled involvement beyond the sector

Going beyond EDTF

Practically, we do not see EDTF as defining an end state. Although we have so far primarily focused on aligning with the EDTF recommendations, we are also thinking more broadly and further ahead to the leading role we must play in an interconnected and inter-sector future for Open Energy. We aim to deliver against the minimum expectations established by EDTF as quickly as possible, accelerating to exceed them in all areas as we progress into RIIO-ED2.

To continue our leading role within the sector, we are continually working to define what can and should happen once we have all the EDTF 'basics' in place and what opportunities exist beyond that by fully embracing the principles of 'Openness'. The 'From:To' table in **Figure 3** defines our current view on where we see opportunities to go beyond EDTF and define corresponding work packages / deliverables in our 2021 Digitalisation Strategy and Action Plan.

Closed to Open

Network operators are relatively closed organisations. As new players enter an increasingly dynamic and competitive Energy market, we face an increasing demand for access to our data to facilitate their business models. To service this requirement, we, like all other Energy Network Operators, need to transition from being largely closed to predominantly open.

Best Endeavours to Governed Coordination

At the moment, across our industry, data sharing is often delivered on a largely transactional basis which until now has been sufficient. This approach is however inherently inefficient and simply cannot scale to meet increasing demands for openness. The EDTF has outlined how we tackle this at a sector level and to realise the full ambition of Open Energy Data, we need governed co-ordination to ensure common solutions and ways of working, such as via the Energy Networks Association Data Working Group.

Small Groups to Critical mass

Network Operators tend to operate in a project-centric manner, focused on developing specific, niche solutions. To address the challenges we collectively face in delivering Open Data, we need to achieve a critical mass across the sector to address those problems in a common way. This is especially the case within our regulatory environment where, as Network Operators, we are used to success on our own. In the context of Open Energy, we need to respond as a sector, looking beyond our regulatory boundaries and beyond individual organisational objectives.

From Possessiveness Over IP, to Federated Knowledge

There are many good reasons not to share some things, but we as Network Operators quickly need to become more comfortable and confident in sharing our data. When we do this, we should aim to be more open and collaborative in sharing our knowledge, recognising the benefit to be gained from the reciprocal insights acquired from others.

Legacy-Driven Framing and Regulatory Design to Operating in a Wider Ecosystem

Typically, everything we do is structured within our regulatory framework. This framework needs to evolve in line with the changing roles Network Operators are required to play within the evolving Energy market whilst respecting all regulatory requirements and commitments.

Occasional Informal Learning to Substantial Involvement Beyond the Sector

To be truly collaborative, we must move away from participating in projects and activities which target very specific needs, to continually and proactively engaging and collaborating within stakeholder forums and open innovation environments that transcend conventional sectoral boundaries.

Delivering the Energy Data Taskforce (EDTF) recommendations

continued

From RIIO-ED1 to RIIO-ED2: Story so far

There has been significant investment to deliver a robust and resilient foundation that underpins our digital capability. For example, we have invested in:

- Rationalising and integrating information systems onto a core SAP ERP, rationalising our enterprise application estate and enhancing data integration between our core systems;
- Mobile enablement of our field-based workforce and digital support for work management and asset data capture, including rollout of our 'Chime' platform-agnostic solution to enable digital field-based data capture by our third-party contractor;
- Digitising of legacy non-digital records, including conversion of our wayleave consent records and vectorisation of the City of London area in support of the Geospatial Commission's National Underground Assets Register (NUAR) project;
- Innovative development of leading smart grid capabilities, such as Active Network Management; and
- Development of advanced analytical capabilities to provide actionable insight to improve the experience of customers' interactions with our teams.

From RIIO-ED1 to RIIO-ED2: Remainder of RIIO-ED1

Throughout the remainder of RIIO-ED1 we will focus on directly addressing the requirements of EDTF recommendations, maturing and enhancing our key approaches to provide a solid enabling foundation for the ambitious digitalisation programme we will deliver through RIIO-ED2.

In considering data requirements associated with EDTF, the transition to Distribution System Operation (DSO) and the broader digital agenda of the energy industry, we have established three core data imperatives of **Reliability**, **Accessibility** and **Interoperability**.

Reliability

Our first imperative is to provide clarity and confidence in the data provided to internal and external stakeholders by serving up reliable, consistent data.

Poor data quality and a lack of agreed standards are clear barriers to the effective use of data. Equally, data quality can be subjective, depending on its targeted use. As a result of increasing openness, the way that our data is being used and by whom is rapidly changing.

It is also important to recognise that across all industries and sectors, flawless data is rare for a variety of reasons. We are therefore continually developing data quality management practices to actively measure and monitor our data quality and make sure we are aware of, understand and proactively address issues.

Ultimately, we do not want data quality issues to be a barrier to openness. We know this is an issue faced by organisations everywhere. We believe the best way to identify and drive out data quality issues is to use the data. Therefore, we intend to be bold in publishing datasets, even when we are not 100% confident in its veracity. To de-risk this, we plan to introduce the inclusion of a 'data quality confidence index' within the corresponding metadata to indicate to the end consumer if there are known issues or constraints.

Accessibility

Opening up and making intelligible key datasets, available to both internal and external stakeholders, is naturally a critical component in satisfying EDTF requirements. Until recently, data publication by network operators was primarily driven by specific regulation and legislative requirement or on a reactive basis in response to ad-hoc requests from external stakeholders.

The fundamental shift in demand to have direct access to system-level network data from a range of third-party stakeholders, is rapidly changing what data we share and how. To meet this demand, we are investing in our data infrastructure to facilitate improved data accessibility and transitioning from a risk-averse stance associated with open data (concerned with issues such as the protection of critical national infrastructure, intellectual property and data privacy), to one where we recognise the value of open publication of our data.

This is why we are developing data triage processes to challenge ourselves in terms of what we can and should share, recognising this as much more than a box-ticking governance process. We need to make sure we strike the right balance between mitigating risks and realising the full potential value of our data to ourselves, our stakeholders and wider society.

Interoperability

Facilitating interoperability and making network data readily usable for any potential consumer, requires the application of industry-standard, technology-agnostic approaches. Of equal importance is the need for network data owners to come together to drive a common direction in the definition and adoption of such standards.

In the absence of specific regulatory requirements, without significant collaboration proactive Network Operators risk introducing and applying varying, potentially incompatible solutions that are collectively counter-productive in delivering true interoperability.

Our industry-leading stakeholder engagement means we are actively engaged in a number of sector and pan-sector collaborative projects and forums aimed at delivering common digital and open data services and solutions to ensure we can meet stakeholders' needs. In parallel, we are continuing to extend the application of IEC 61968 Common Information Model (CIM) standards to facilitate both enhanced integration of our enterprise systems and publication of standardised network data.

How we gather, collate and validate needs

A structured approach

From the outset of the development of our Digital Strategy, we have aimed to gain a comprehensive understanding of the needs of our various stakeholders through proactive consultation across key groups, using the insights gained to inform the shaping and prioritisation of our digital improvement plans.

Our thoughts on the shape and direction of this continue to be aligned with the structure presented within our Digital Strategic Framework (**Figure 1**), which was enhanced via 32 responses received following our 2019 Digital Strategy consultation. Via these responses, we received an especially detailed response from the Greater London Authority, and have ensured that the key themes and principles in relation to data, digitisation and interoperability are reflected in our plans.

From the 400+ hours of internal workshops covering these same points, we have been able to make game-changing improvements in customer service; and our internal stakeholders and colleagues are passionate and impatient for digital improvements, viewing them as key enablers for their RII0-ED2 plans.

Crucially, the knowledge gained from this engagement has contributed to the development of our data personas (detailed further in Section 4), allowing us to group and categorise our digital stakeholders and their corresponding needs.

Given the breadth of stakeholders engaged, the diversity of these needs and corresponding use cases, we have formed the following condensed and simplified view of what we believe our external stakeholders want and need to know about our network assets:

- **What** network assets do Network Operators have?
- **Where** are those network assets located (sites and circuits)?
- **Who** owns / is responsible for those assets (e.g. which DNO, IDNO, DER operator, etc.)?

- What is the **capacity** of those assets?
- What is the level of **utilisation** (available capacity) of those assets?
- What is the level of **performance and reliability** of those assets?
- What **planned development** is there on the network, what will that deliver and when?

This summary perspective has been tested on our stakeholders who have validated this view confirming that if we are able to deliver across all of these areas, we will have been successful in meeting their needs.

Within our industry

We have taken steering from Ofgem and BEIS regarding expectations for significant digital progress by DNOs in RII0-ED1; participated in collaborative effort related to the Energy Data Task Force report since its publication in 2019 and its “presumed open” stance; planned for the resultant new license conditions for RII0-ED2; and integrated our vision and plans for DSO establishment and the requisite additional digital investment required.

When we share these experiences with our stakeholders, we always offer specific context for these relatively theoretical discussions, for example exploring needs related to promoting operational network visibility and data availability to the market, or providing accurate, machine-readable and comprehensive network information. The feedback that follows from our stakeholders then feeds directly into our experimental efforts, in which we constantly strive to make digital discussions more concrete and practical. This in turn directly shapes our 2021 plans.

A reflection of our overall position within our sector is that in 2020, we were assessed against global peer organisations in the SP Group Smart Grid Index, benchmarking as the number one global Smart Grid operator. This is independent and impartial research undertaken by SP Group.

Within the wider energy sector

We have much to share and more to learn from our peers in the wider Energy sector. We have attempted to gather from wider stakeholders what might be needed from us and also, what they can help us with, for example engaging with and learning from new and established Energy players such as retail suppliers, aggregators and energy technology companies. We have also engaged and will continue to support innovation within the sector such as the Modernising Energy Data Access (MEDA) competition winner Icebreaker One where we have participated in their Stakeholder Advisory Groups.

We have also addressed more holistically, the shared digital use cases we have in common with other utilities to support greater efficiency, better service and overall lower costs to customers. For example, via our involvement in forums such as the Geospatial Commission’s National Underground Assets Register (NUAR) project, Greater London Authority (GLA) Infrastructure Mapping and the London Data Commission.

Beyond and across energy sector boundaries

We are at the start of our journey to apply what we are learning from exploring the wider role of digital in our lives. We have openly shared our thinking using open social media, to develop connections that will hopefully evolve into collaborative efforts, with specific focus on Financial Services, Health and Care and Local Government. We have done this in a focused way that links directly to the topics we either directly have in common (for example, the similarities between Open Finance and Open Energy), or where we have shared customers with common needs (most pertinently, decarbonising heat and electric vehicle adoption).

We are also long-standing members of the Institute of Civil Engineers Infrastructure Client Group’s (ICG) Digital Transformation Task Group (DTTG), the sole DNO in the group. Our participation has afforded us the opportunity to learn from, collaborate with and formally benchmark ourselves against a broad range of infrastructure owner / operators from across the UK. We have also been able to contribute to the shaping of national initiatives such as the development of the National Digital Strategy.

How we gather, collate and validate needs continued

Supply-side / demand-side balance

Against the different levels in our structured approach (within our industry; within the wider energy sector; and beyond and across energy sector boundaries), we apply a specific set of ‘supply-side’ and ‘demand-side’ principles to organise and manage everything we do to develop the evidence for how all elements of our Digitalisation Strategy and Action Plan meets specific stakeholders’ needs.

By ‘supply-side’ we mean the nuts and bolts of developing and managing stakeholder engagement to capture and understand needs. There are three specific objectives:

1. Being a trusted partner to our stakeholders.
2. Being digitally enabled for maximum productivity.
3. Using Open Innovation to build a problem-solving platform based on needs, harnessing diversity of thought, opinion and perspective from a global crowd.

The ‘demand-side’ objectives of our approach reflect how we will create conditions for our stakeholders to want to get involved, develop new relationships and ultimately make the case for new collaborative effort:

1. Executing engagement methods that inspire awareness and excitement for the opportunity to participate, creating a ‘fear of missing out’.
2. Openly making friends within and beyond the sector and generously connecting each other so we’re all creating new networks.
3. Being evidence-based and regionally relevant in the engagement of communities for exceptional multichannel campaigning, for example for vulnerable customers.
4. Creating a bespoke brand identity for digital and / or Open Energy, that emphasises circular sharing of new information and case examples.

This supply-side / demand-side differentiation means we can take any stakeholder need and understand the associated user communities impacted by the use case, ensuring thorough, tailored engagement and the definition of concrete outcomes and their associated measurement of value.

EV Charge Challenge

We know from our customer engagement activities and our Connections working groups that the future success of the Government’s drive for electric vehicles will be underpinned by the availability of the charging infrastructure and the associated consumer confidence boost that comes with it.

In June 2020, we launched “The Charge Challenge” and invited a crowd to help us work out places in our network where EV chargers are most likely to be positioned. The challenge received responses from PhDs, professors, and energy enthusiasts. Many of the solutions involved cutting edge analytics techniques such as Machine Learning and advanced simulations.

Importantly, it helped prototype the use of a modest upfront investment (<£1,000) applied to Open Innovation concepts to generate multiple, innovative, robust and potentially game changing outputs. Four of the responses to the challenge were exceptional quality and two were jointly awarded the first place in the contest. The solutions were passed on to our asset investment team and have since been used to help them target future network reinforcement spend with greater precision and confidence.

Critically, we also published the entries and algorithms on our external website in December 2020 to enable the global market to benefit from this approach. This modestly resourced, major-impact project sets the tone for our intended Open Innovation and Open Data playbook.



How we gather, collate and validate needs continued

Two sides of a circle

Practically, the introduction of a circular model for supply-side / demand-side actions means on the supply-side, we will constantly be horizon scanning and tracking topics to catalyse into discussions across and beyond the sector, for example related to entrepreneurial activity related to the adoption of electric vehicles. On the demand-side, we will put responses back out to members of our community in a way that excites and inspires stakeholders to get involved. Every time we work something out together, we will strengthen relationships and improve trust, which will in turn drive participation and help us deliver our plan. Effectively, two sides of a circle come together, as depicted in **Figure 4**.

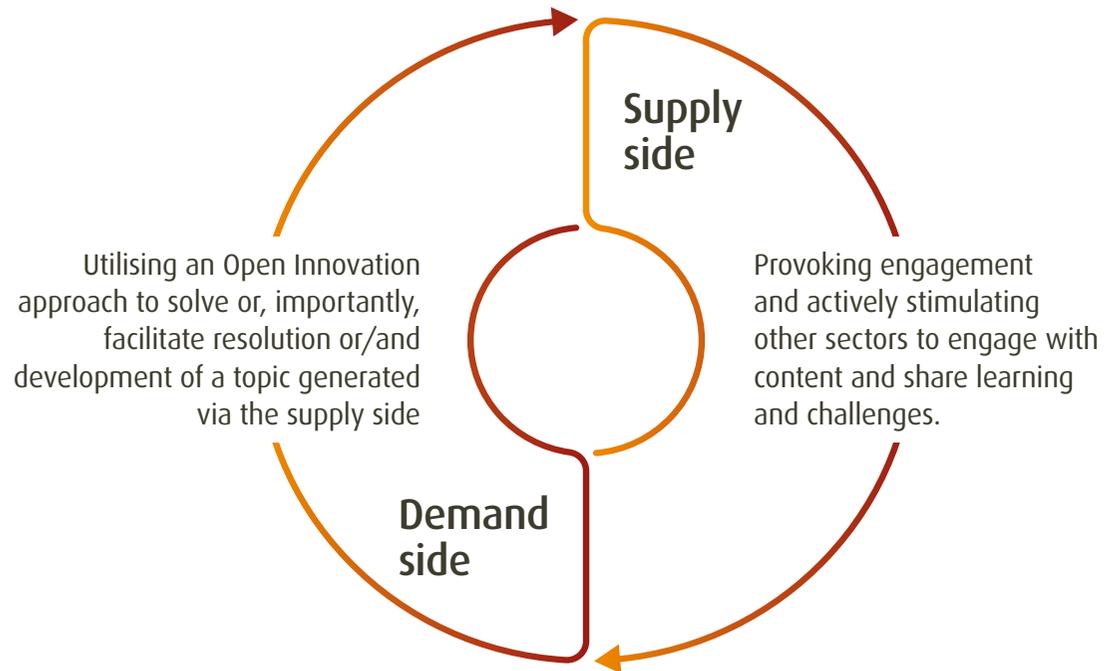
To proactively develop our future 'user' community, we will use digital best practices for community management and Open Innovation and share our know-how and lessons learned across sector boundaries. We intend to lead the sector in these innovations, so it is especially important for us to share lessons learned from the experimental work we have done to reach this point and our supply-side and demand-side objectives.

Technically, in line with Digital Transformation emerging best practices, we will create an open 2-sided platform to drive activity and engagement on pan-sector issues. In practice, this means we will establish and manage a digital platform provided by an external supplier so we can work with an organisation completely devoted to innovation in how to collaborate with communities and external stakeholders. Our routine and repeating actions will include publication of compelling content via the platform, marketing the platform in our user communities and proactively seeking contributions. We will also plan for diverse groups of colleagues to respond to newly emerging needs raised via the platform.

To bring this all together into a simple, single definition of how to operate our open 2-sided platform, we will create and publish our Open Innovation and Open Data playbook to help us set the tone for our intended leadership of this key element of our Digital Strategy. We are confident in our likelihood of impact and success as we are building directly from successful prototype efforts in 2020.

Figure 4: Circular model for supply-side / demand-side actions to develop and understand stakeholders' needs

Turning 'Need' generation activity from a reactive endeavour, to a game-changing differentiator for engagement and innovation.



Our view on data personas

No gaps or overlaps

We have defined a comprehensive list of our key stakeholders and documented a corresponding inventory of detailed descriptions. By sharing this with our stakeholders at various forums and inviting feedback, we have incrementally developed and refined these definitions to the extent that we are confident there are no gaps or unhelpful overlaps in the way we think about these personas. This has helped us develop a deeper understanding of our stakeholders' needs, providing clarity to an otherwise complex landscape. The data personas are aligned with the user needs identified through our user communities.

Consequently, our personas act as a guide for service improvement and product development by guiding us to create features that help achieve their desired outcomes. One such example of this is our recently published DSO Dashboard, demonstrating how our understanding of the alternative commercial services provider and Flexibility & Aggregator user groups' needs were addressed through the delivery of a relevant and multi-dimensional solution.

Continually evolving definitions

We recognise that we might reasonably miss details in the definition of a persona. Therefore, when it came to their formulation, we started with the Ofgem guidance on DSO user groups and then let them evolve organically during facilitated rounds of testing with our Connections and DSO stakeholder engagement groups. This led to the revision of the definitions but also, crucially, to the creation of a new one which we hadn't previously thought about – third party data service providers.

Example personas

Alternative commercial services providers, e.g. IDNOs and ICPS

Principal use case: Use our data to offer services, potentially to new developments, in competition with us.

Specific requirement: Static and dynamic data, as well as operational data to understand how they can offer the best services to potential customers.

Main challenge: Their biggest pain point is similar to the potential customer's, as they would want to connect at the cheapest price and expect good customer service in doing so.

Key details: They would also like self-service access to our data.

Aggregators and Flexibility providers

Principal use case: Aggregators and Flexibility providers will be active participants in the DSO flexibility markets.

Specific requirement: Primarily interested in static and dynamic asset data.

Main challenge: They are likely to proactively engage with us and request data that will allow them to optimise their own business models.

Key details: Aggregators and flex providers will be the key consumers of market data related to UK Power Networks' flexibility markets.

Third party data service providers

Principal use case: Third party data service providers are different from any of the other user groups as they represent the entrepreneur and innovation uses.

Specific requirement: They would be interested in any and all data.

Main challenge: Acting as a collator of data across multiple sectors, they provide a data aggregation and dissemination service without necessarily having a specific use case in mind.

Key details: They are future services facilitators and business model creators.

Our view on data personas continued

Mapping data personas to use cases

We map stakeholders to data use cases and the associated data types, which helps us organise and refine our understanding of existing and future consumers. Consequently, this provides a structure to enable internal and external testing of a data persona, which drives the iteration of specific details that ultimately make the definition useful and actionable. Each of our persona definitions is mapped to whether or not there is a requirement to access and use personal data; customer data; operational data; static asset data; dynamic asset data; and fault data.

How we apply this framework

We need to think about the totality of users we serve, even when they do not know what they need from us.

Our personas allow us to capture the likely interactions, or lack thereof, that customers are likely to have with us. This helps us ensure that as we design products and services, we are fully inclusive of groups who may not want to engage with us, and it is straightforward for those groups to find us when they need to.

Figure 5: Data personas mapped to most relevant data types

Key
 ● Little relevance | ● Some relevance | ● Most relevant

Customer Personas	Personal Data	Customer Data	Operational Data	Static Asset Data	Dynamic Asset Data	Fault Data
Disengaged Energy Consumer (Domestic or Commercial)	●	●	●	●	●	●
Energy Conscious Domestic	●	●	●	●	●	●
Academic and Research Establishments	●	●	●	●	●	●
Connected DER (Generation or Demand)	●	●	●	●	●	●
Potential connection (Generation or Demand) customers, Developers and LCT	●	●	●	●	●	●
Electricity Suppliers	●	●	●	●	●	●
OFGEM	●	●	●	●	●	●
Local Authorities and Community Energy Groups (incl. Aggregators)	●	●	●	●	●	●
Supply Chain	●	●	●	●	●	●
Alternative commercial services providers, e.g. IDNOs and ICPs	●	●	●	●	●	●
Other Electricity and Gas Networks	●	●	●	●	●	●
Non-Energy Networks (incl. water and telecoms) and Infrastructure Owners	●	●	●	●	●	●

Coordinating activities with other organisations and outside the sector

A component in a system of systems

We see ourselves as a component within a wider system of systems. Our structured approach – starting with our Digital Strategic Framework, leading to our definition of personas and Digital Operating Model – provides focus and meaning for our efforts to proactively play our part in collaborative activities. In 2021, we will drive our supply-side / demand-side approach to engagement to reach completely new ways of co-designing with our customers and stakeholders solutions for our shared future needs.

Collaborating with our customers, for coordinated activities with our industry peers

At the centre of our motivation for all sector coordination activities, is customer impact. More specifically, our ways of collaborative working that encourage inclusive participation from the market, make sure there is good representation from our customer base.

For example, shortly after the publication of this document we will openly publish our 'DSO dashboard' which provides unprecedented real-time information and insights into how power is flowing through local electricity networks in an easily accessible portal. It is open to anyone, without having to register or sign in.

For the avoidance of doubt

We would like to emphatically repeat our commitment to open collaboration, with customers and stakeholders, is certainly not 'tick-box' in its nature for us. Coordinating and collaborating with our stakeholders enables our understanding of rapidly evolving needs that develop in uniquely unexpected ways, as we learn from the use or application of the product or service we are focused on. We enable rich feedback loops with our customers and wider stakeholders and support our leaders to participate and synthesise feedback – and then make the change happen, quickly, with the transparent backing of executive leaders.

DSO dashboard

The project represents convergence of our external engagement with DSO stakeholders and EDTF recommendations. This obvious sector-coordination opportunity, for us, started with our customers and our motivation to over-deliver for their benefit. To prove we mean it, we are very focused on inclusive representation, co-designing solutions, enabling and embracing feedback, reviewing and acting on that feedback, launching with impatience and emphasizing the importance of iteration through repeat engagement. We apply this to both our customers and our sector colleagues and stakeholders.

In the example of the DSO dashboard, the following co-created and coordinated outcomes are in progress:

- Net Zero – providing a detailed view of where current distributed generation resources are inputting to the network;
- Capacity – allowing generation providers and investors to offer new capacity to the network helping to avoid potentially unnecessary investments in some areas;
- Digital Twin – enabling researchers to use the bank of network data to test theoretical models using real-world information; and
- Co-creation – the dashboard has been named and released as Beta and we have actively promoted it on social media and via industry working groups to help generate awareness, uptake and most importantly, feedback, so that we can continue to build upon it and improve it.



Coordinating activities with other organisations and outside the sector continued

Collaborating with our industry peers

We consider participation in industry forums and initiatives to be instrumental in achieving collective success in fulfilling EDTF recommendations. We are involved in an extensive range of activities in this respect as follows.

Data Best Practice Guidance

We are active members of the Energy Networks Association (ENA) Data Working Group, driving collaboration across Gas and Electricity Network Operators in the common fulfilment of the EDTF recommendations and adoption of Energy Systems Catapult Best Practice Guidance.

We are committed in our support of the range of projects and initiatives the group has implemented and we will continue to engage, collaborate and share knowledge throughout our digital journey.

Modernising Energy Data Access (MEDA)

We continue to engage in a number of MEDA projects and initiatives such as participating in the Icebreaker One 'Open Energy Technology and System Advisory Group'. A key objective in this respect is to maintain a broad overview of all MEDA activities to ensure we can effectively support as efficiently and effectively as possible.

Data Visibility Discovery

We are contributing to the Electralink Flexr project which is targeting enhanced data visibility, discovery and access through the development of a common platform that serves up normalised DNO datasets to address a broad range of third-party use cases.

Asset Registration

We are directly involved in various ENA working groups tasked with defining common asset registration standards such as the Embedded Capacity Register which UK Power Networks implemented and published at the start of 2020.

Digital Mapping

We continue to invest in digitising and enhancing our geospatial network records and have been participating in the Geospatial Commissions National Underground Asset Register since its inception. We also take a leading role and provide the chairperson for the ENA National Energy System Map pilot which is targeting the development of a common geospatial platform for Gas and Electricity network data.

Collaborating beyond and across energy sector boundaries

Open Energy sets the direction

The EDTF provides clarity on the subject of Open Energy data, providing a clear direction of travel for energy network operators to which we are collectively responding. We recognise that Open Energy Data is a component of the broader Open Energy agenda and the aspiration of transforming the energy market for the benefit of the customer without the need for additional complex regulation.

We are therefore committed to adopting a holistically open approach, learning from similar frameworks such as Open Government and Open Banking / Open Finance and collaborating with our peers and the regulator to open up our data via standardised and secure services to others that can leverage these datasets to deliver new innovative services to the Energy market.

We believe that by collaborating on the principles of data availability, we will enable others to deliver and compete in a market which boosts efficiency of infrastructure systems and services.

Beyond Energy

We are proactively increasing our coordination and collaboration efforts with organisations beyond the Energy sector, who are exploring an equivalent topic to Open Energy. This learning will influence our own agility, innovation, effectiveness and cost efficiency in the development and delivery of digital services and customer experiences influenced by digital products.

We are the only Distribution Network Operator present on the Institute for Civil Engineering's Infrastructure Client Group Digital Transformation Task Group which facilitates benchmarking, collaboration and mutual learning in the implementation of Digital strategies from various asset management and infrastructure operator organisations.



Our approach to governance

Digital governance at UK Power Networks starts with a clear understanding of what we mean by 'Digital'. For us, it means delivering better experiences for customers, staff and driving value with digital or data-enabled solutions that makes us better, greener and more efficient.

To make sure we have a clear understanding of when and how to use different terms, we use the following definitions:

- **Digitisation** means making non-digital data digital;
- **Digitalisation** means realising business opportunities and value, presented by digitisation; and
- **Digital Transformation** means changing business models with digital.



To deliver all aspects of our Digital Strategic Framework, we must successfully plan, coordinate and execute Digitisation, Digitalisation and Digital Transformation activities, and not lose precision in our focus or use of these terms.

We have executive-level accountability

In a word, our leaders need to be courageous. This is why accountable leadership is so important. Our Digital leaders need to be focused in setting direction; visible in the breaking down of siloes; and sensitive to the disruption Digital Transformation can cause, helping our people along the way.

Our Director of Strategy and Customer Service is ultimately accountable for the delivery of our Digital Strategy and associated Action Plans, aligning them with business strategy, innovation and services to enable delivery of organisational outcomes and objectives.

From our experiences governing Analytics this year, with numerous examples of, "That can't be the case," reactions to actionable insights, we needed courage to ask in response, "Why not?" which we offer with patience, determination and empathy. We will need this courage to scale our successes quickly and achieve the promise of our Digital Strategic Framework.

Much more than project governance

This incorporates our 'two-speed' approach to project delivery reflecting the different end user and delivery needs. Using a single fixed approach is not realistic when we are simultaneously delivering digital change projects with Agile principles and IT resilience projects via a waterfall approach. We govern this flexibility by making sure we are always bringing leading governance methodologies together via our pan business steering group.

The outcome of our digital governance efforts is enablement as well as control; bringing people, process, technology and data considerations together into one co-ordinated, governed approach meaning every activity in our Digital Operating Model has the chance to be convincingly joined up, aligned and contribute toward delivery value.

The spectrum of digital governance scope takes an organisation-wide perspective, stretching from the identification of implementation options from cross-sector horizon scanning, to their translation into implementation plans that address strategic priorities. This represents holistic scope in our view, and involves evaluation of stakeholders' needs, prioritisation, architecture, business change, project control, and measurement of impact.

There are two specific elements of our governance structure:

1. The Digital Steering Group (DSG) – Responsible for the coordinated development and delivery of the Digital Strategy and all associated initiatives; and
2. The Digital Portfolio Board – Solely focused on traditional programme monitoring and control.

Both forums run monthly and involve a quorum of the senior business leaders responsible for the areas of people, process, technology and data, pulling in participation from a broader community of business subject matter experts where required.

Together, these governance forums have overall responsibility for the coordination, enablement and control of our digital transformation portfolio, interfacing with other governance functions throughout the business as appropriate.

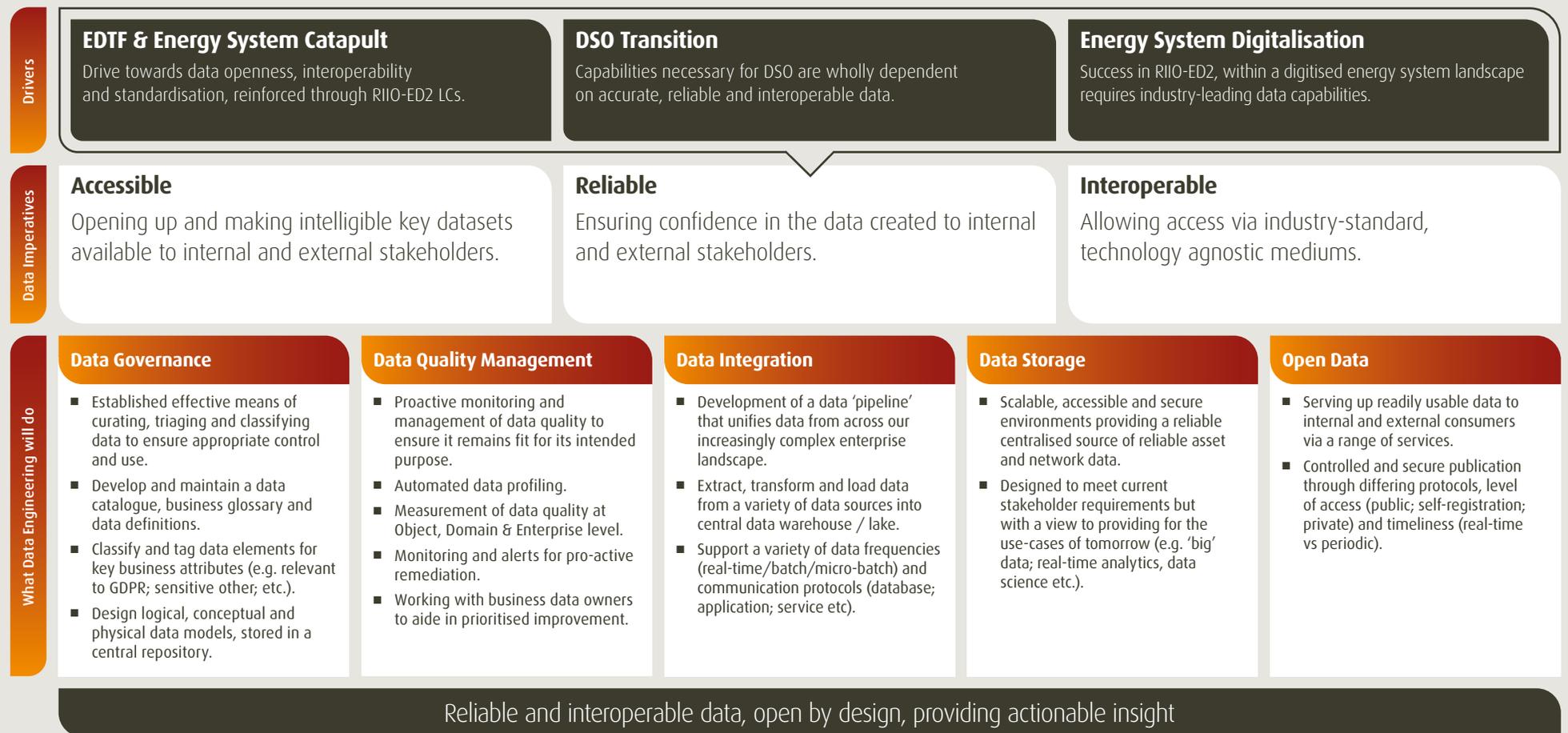
To provide overarching Board-level ownership and oversight, reflecting the organisation-wide impact of digital, bi-monthly updates are provided to the Executive Management Team. This enables detailed engagement with the Digital Strategy from across the business, allowing us to avoid the risk of creating digital siloes and shadows (areas of 'hidden' digital expertise that are not coordinated by the Digital Group). This is also the main mechanism for providing the opportunity to review prioritisation and progress against our Digital Strategic Framework and advise course correction when required.

Our approach to governance continued



Figure 7: Governing Data Engineering

In 2021 we plan to deliver tangible outputs to meet EDTF expectations and lead in collaboration efforts across the sector. We intend to set the future direction for Open Energy Data, cementing its place at the core of our Digital Strategy. To achieve this ambition, we will establish a new Data Engineering capability tasked with delivering against the three core imperatives of Reliability, Accessibility and Interoperability explained in From RII0-ED1 to RII0-ED2.

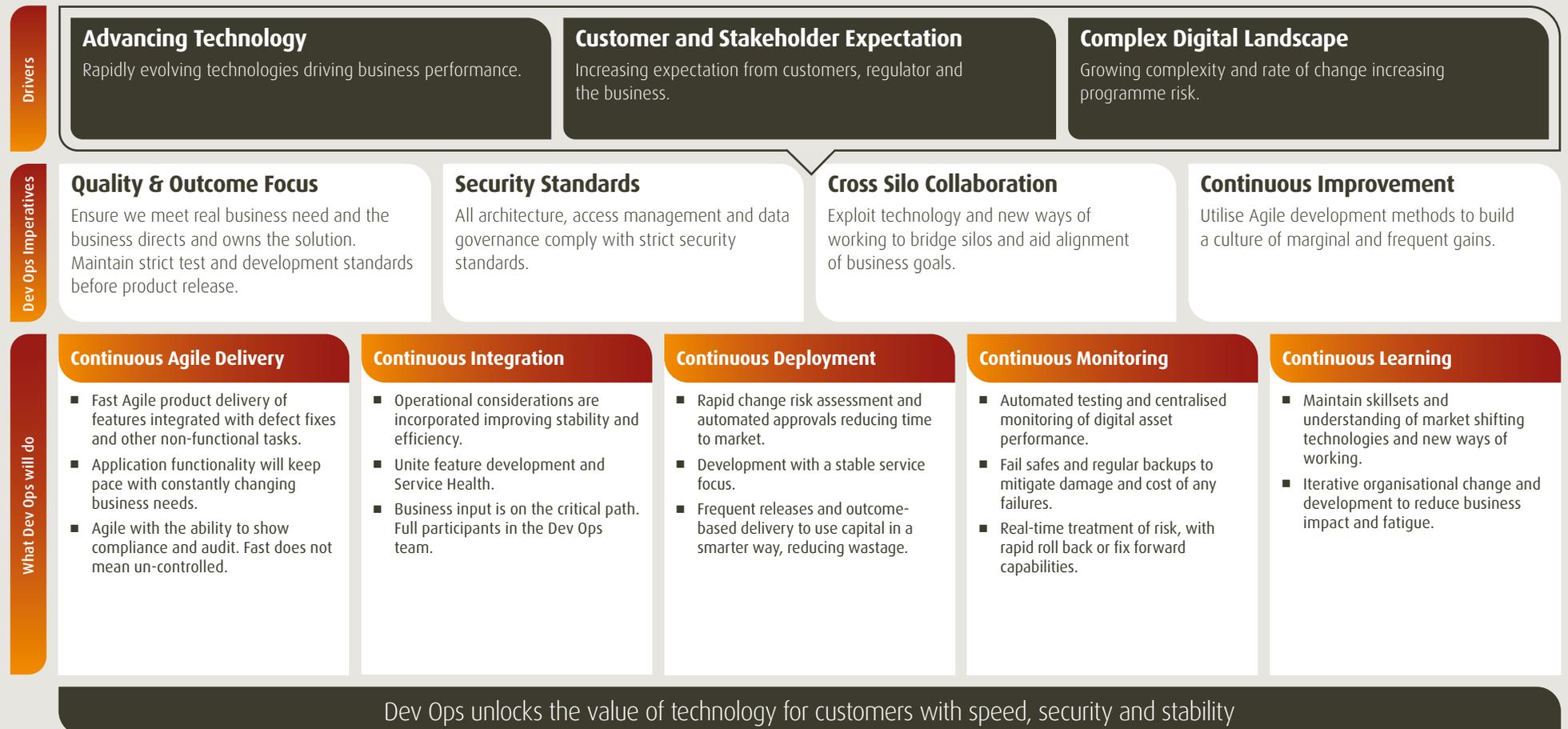


Our approach to governance continued



Figure 8: Governing Dev Ops

In 2021 we will establish our Dev Ops capability within our Digital Operating Model to unlock the value of technology with speed, security and stability. This is a separate team liberated from 'traditional' IT delivery, operating as a collaboration of business owners, developers and IT operations combining agile delivery with a stable service consideration. They will deliver continuous change exploiting automation and tooling combined with stringent security and governance considerations to safeguard our technology estate.

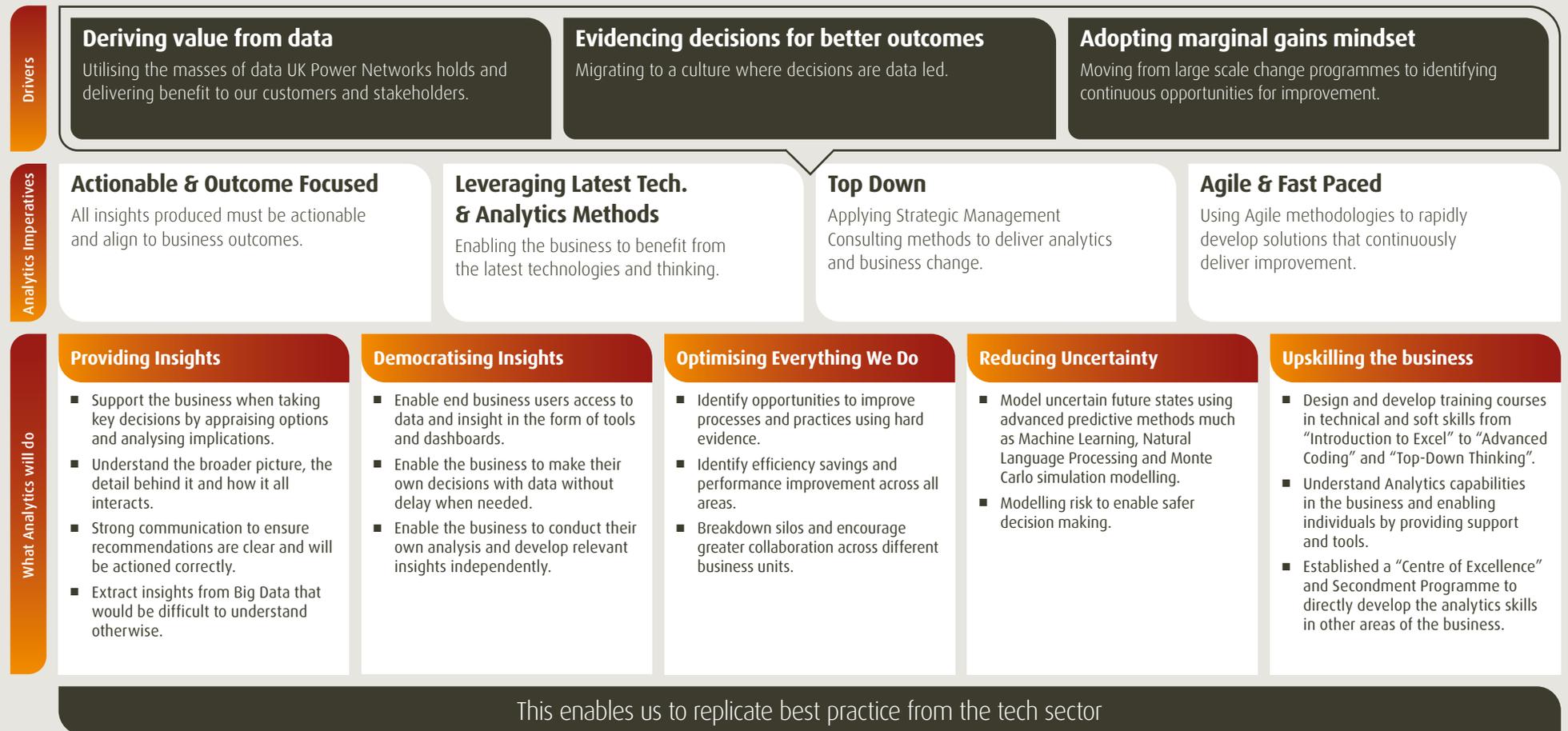


Our approach to governance continued



Figure 9: Governing Analytics

In 2020 we established the 'analytics centre of excellence' across UK Power Networks with the purpose of upskilling the analytics talent within the wider business, bridging analytics silos and giving individuals access to best practice knowledge. Since its introduction the Analytics team has worked to enhance our performance across Customer Services, Network Reliability, Commercial value and provided assurance at the outbreak of Covid-19 that the business remained able to fulfil all commitments throughout the pandemic. In 2019, the Analytics team returned an ROI of 22:1 with improved performance in 2020. These objectives directly influence the 'plan on a page' for governing Analytics, shown in **Figure 9**.



Our workforce plans

Readiness for the network of the future

At a regulatory conference in January 2019, when asked if data was the most valuable commodity, only quarter of the audience raised their hand. The outcome is likely to be very different now, with Ofgem explicitly naming data and digitalisation a strategic project for their 2021/22 Forward work programme, highlighting how quickly recognition of the importance and value of data has accelerated in the sector. This maps to our long-held assertion that we need to be ready for the network of the future. This will surely feature the long-term effects of digital with embedded software in embedded assets and dependence on virtual assets and advanced technical and computational approaches.

We have examined 'digital-first' organisations within and beyond our sector. We have concluded that operating in a digital world, and succeeding with our Digital Operating Model, needs core competencies that have not existed in a network company in the past. These are clearly competencies digital-first organisations have grown up with – now we need to do the equivalent in service to our customers.

We have already brought in targeted leaders, and talent within our organisation to seed these competencies in the business. For example, we have developed a community of practice for Advanced Analytics and Decision Sciences. We sought out data-minded colleagues from around the business, and upskilled them. We found this approach enabled expression of curiosity and ambition for change from within, showing us a new way of thinking directly emerging from skills development.

The outcome is a community of excellence, of similarly motivated people who felt a kinship and curiosity to succeed with digital scope. We will now take these experiences, and examine the strategic opportunity to scale this impact and apply it to skills needed for the network of the future – for example, managing software in assets – to start upskilling our workforce.

We recognise we are at the very beginning of what is surely a prolonged effort in developing our workforce.

Case example: Project Constellation

Constellation, a transformational initiative which will demonstrate novel approaches to network protection and control, will provide protection to the smart services DNOs will rely on to operate the network, both reducing the risk of system wide frequency events and the cost of system balancing. It also supports achieving Net Zero by unlocking network capacity for DER to connect.

The project demands significant growth and development of operational IT and telecoms roles. It also involves the convergence of operational IT/telecoms and electrical protection roles with protection testing becoming as much about software development and optimisation, as well as electrical engineering.

Changing skillsets for our enduring Digital Operating Model

We need to change skillsets in anticipation of enduring needs, for example to manage the electrical and software side of our organisation's activities. Therefore, we need an accessible talent pool, which for us in 2021 starts at grass roots-levels promoting STEM in schools, and apprenticeships targeting local communities. This is most accurately evidenced by Project Constellation to build the future skills we need.

The importance of curiosity in our workforce plan

Diversity of thought and experience is critical to our digital workforce plan. We have learned from our efforts to date, the best way for us to harness this is to champion and celebrate digital curiosity. In our work with Advanced Analytics in particular, we brought in external best practices and hired from outside the sector to be early to establish these competencies in the sector. The cognitive dissonance from a talented new team uninhibited by the status quo, inspired upskilling and a new skills baseline for participating colleagues. We saw curiosity develop in front of us, and now we have a centre of excellence to bring diversely experienced colleagues together. Our workforce plan for digital is a catalyst for generating curiosity.



Our workforce plans continued

Our specific workforce commitments

In 2021, we will build from our vision for our future workforce and target the delivery of the following commitments and activities:

Table 1: Workforce 2021 commitments and activities

Commitment - What we will do	Activity - How we will deliver	How we will measure success
1. Undertake an annual maturity assessment on our developing digital skills and attributes	Use our existing maturity assessment undertaken via an independent third party in 2020 as a baseline to measure and track improvements against the 10 digital skillsets and 10 workforce attributes we believe are needed in the future work place.	<ul style="list-style-type: none"> ■ Binary – Maturity assessment completed – Y/N ■ % improvement on previous year vs the 10 skills and 10 attributes ■ Number of action plans implemented
2. Enhance existing and add new (where required) training for all employees	<p>Deliver training through our RII0-ED1 refreshed elearning management system.</p> <p>Seek out specialist third party support to help develop and roll out training content.</p>	<ul style="list-style-type: none"> ■ % pass rate ■ % data capture improvement by teams / individuals having attended (Direct) ■ % data quality improvement by teams / individuals having attended (Direct) ■ End user satisfaction survey scores
3. Support and repurpose employees to develop new skills	Use the apprenticeship levy to help us support and upskill employees who would otherwise face challenging circumstances in their current role in the future.	<ul style="list-style-type: none"> ■ Number of employees successfully repurposed ■ % employees successfully completing training scheme
4. Grow our Digital Group and extend spokes out into core business areas	Where needs are evidenced, continue to grow our core digital teams as dictated by demand and value generation, moving them out of the core and into the frontline business.	<ul style="list-style-type: none"> ■ Number of teams deployed into the business ■ Number of roles fulfilled

Action Plans

Our 2021 Action Plan

2021 will focus on accelerating our Data Engineering capabilities, targeting the following commitments and activities to drive our success:

Table 2: Data Engineering 2021 Action Plan

Commitment - What we will do	Activity - How we will deliver	How we will measure success
1. Provide complete transparency of the data we hold	Develop, maintain and openly publish a Data Glossary providing data definitions, intended purpose of the data, how it is held, whether it is openly available or shared and an indication of completeness / reliability.	<ul style="list-style-type: none"> ■ Count of Data Objects defined and published within the Data Glossary ■ Data Consumer Satisfaction (through survey)
2. Openly publish and share more of our data, prioritising based on stakeholder needs and removing barriers to publication through effective mitigating controls	<p>Implement a modern, resilient and scalable data infrastructure to facilitate improved data integration and access via scalable, cloud-based storage environments.</p> <p>Prioritisation will be based on external stakeholder needs with specific focus on Asset and Network-related data.</p> <p>The primary focus will be on fulfilling the future development of the Embedded Capacity Register (ECR), Long Term Development Statement (LTDS) and Electralink's Flexr project. Principal datasets are therefore likely to include Transformer, Circuit, Network Load, Fault Performance and Distributed Energy Resource (DER).</p>	<ul style="list-style-type: none"> ■ Count of openly published datasets ■ Data consumer satisfaction (through survey)
3. Implement a transparent Data Triage process	Collaboratively develop and implement common Data Triage techniques, tooling, processes and governance in conjunction with our peers from across the sector.	<ul style="list-style-type: none"> ■ Count of datasets subject to Data Triage ■ Alignment / Consistency of Data Triage evaluation across Networks Operators
4. Drive continued improvement in the quality of our data	Develop contemporary data profiling tools and techniques to facilitate active measurement, monitoring and assurance of data quality to facilitate the maintenance, enhancement and control of our critical data assets.	<ul style="list-style-type: none"> ■ Improvement over time based on data quality at Object, Domain and Enterprise Level
5. Improve access to our data through our centralised data portals	Continued development and enhancement of the means by which our data is accessed via our data portal, progressively introducing more sophisticated publication mechanisms.	<ul style="list-style-type: none"> ■ Number of users accessing and consuming data from our data portal ■ Data Consumer Satisfaction (through survey)

Action Plans continued

Table 2: Data Engineering 2021 Action Plan continued

Commitment – What we will do	Activity – How we will deliver	How we will measure success
6. Accelerate digitisation of our Geospatial Network Records	Procure services and commence delivery of the wholesale digital conversion of our geospatial network records.	<ul style="list-style-type: none"> ■ Delivery of the GIS Vectorisation project to time, cost and quality ■ Percentage of UK Power Networks’ network fully digitised
7. Work towards delivering network data in an interoperable format	We will continue to adopt and implement common data standards and extend the application of IEC 61968 Common Information Model (CIM), anticipating that this will become the de facto standard mechanism for the exchange of standardised network data.	<ul style="list-style-type: none"> ■ Data Consumer Satisfaction (through Survey) ■ Count of CIM based datasets published ■ Assessment of projects and initiatives facilitated by CIM based data
8. Play an active role in driving standardisation of data services and solutions across the sector	Active participation in a range of industry and pan-industry forums and initiatives which target the collaborative development of standards, services and solutions which support the realisation of Open Energy Data.	<ul style="list-style-type: none"> ■ Assessment of adoption and implementation of standards and common practices ■ UK Power Networks considered to be an Open Data influencer by stakeholders
9. Assess and openly publish our ‘Open Data’ maturity	We will complete an assessment of our ‘Open Data’ maturity to provide a baseline assessment of our open data practices and capabilities.	<ul style="list-style-type: none"> ■ Delivery and publication of baseline assessment
10. Publish a comprehensive Open Data Strategy	Definition and implementation of a comprehensive Open Data strategy based on feedback from our stakeholders, insights from assessing best practice and evaluation of our own maturity.	<ul style="list-style-type: none"> ■ Development and publication of the Open Data Strategy

Action Plans continued

In 2021 we will build upon our existing talent base to advance our Dev Ops capability. Key activities will be focused on establish enabling technologies and infrastructure to enable development and delivery of the following commitments:

Table 3: Dev Ops 2021 Action Plan

Commitment – What we will do	Activity – How we will deliver	How we will measure success
1. Develop our in-house Dev Ops skills & capabilities	Recruitment of experienced professionals and implementation of tailored and effective training and development pathways to develop the skills needed for Dev Ops, both within the newly formed Dev Ops capability and across the enterprise.	<ul style="list-style-type: none"> ■ Count of courses delivered ■ Course pass-rate ■ Structured feedback from ‘internal clients’ on the quality of Dev Ops ways of working
2. Develop our Dev Ops culture	Promotion of new ways of working based on a spirit of collaborative working and continuous learning that focuses on agility, responsiveness and flexibility in delivery.	<ul style="list-style-type: none"> ■ Number of staff collaboratively engaged in Dev Ops projects ■ Dev Ops projects delivered to time, cost, quality and scope ■ Structured feedback from ‘internal clients’ on the experience of Dev Ops ways of working
3. Deliver industry leading Dev Ops tooling	<p>Deployment of Dev Ops tools to amplify team coordination and which feature technologies and processes for services, continuous testing and delivery pipelines.</p> <p>Out-of-sector engagement to compare and contrast with leading digital-first organisations.</p>	<ul style="list-style-type: none"> ■ Implementation project delivered to time, cost, quality and scope ■ Structured feedback from external stakeholders on the quality of Dev Ops ways of working
4. Deliver targeted Dev Ops projects	<p>Delivery of a series of Dev Ops projects targeted at tackling specific, impactful use cases, led by the newly formed, cross-functional Dev Ops capability.</p> <p>Identify key areas of inefficiency within the business and showcase the value of Dev Ops skills and capability, prioritised according to impact and urgency (e.g. process automation, payments, customer self-serve).</p>	<ul style="list-style-type: none"> ■ Dev Ops projects delivered to time, cost, quality and scope ■ Project benefits realisation – reduction in time and cost, improvement in quality, etc. ■ Customer satisfaction
5. Implement continuous application performance monitoring	Incremental deployment of application performance monitoring to facilitate detection, prioritisation and isolation of application defects before end users find them, through the use of special application monitoring software.	<ul style="list-style-type: none"> ■ Count of applications subject to monitoring ■ Count of issues identified and remediated ■ Defect frequency rate

Action Plans continued

In 2021, we will build upon year-on-year successes of our Analytics team and target the delivery of the following commitments and activities:

Table 4: Analytics 2021 Action Plan

Commitment – What we will do	Activity – How we will deliver	How we will measure success
1. Provide Cost Out insight across the organisation	Produce a playbook which identifies opportunities for cost savings, and actionable plans to deliver them, without negatively impacting business performance.	■ A 10% reduction in operating costs without significant negative impact on business performance
2. Automate reporting and deliver self-serving analytics tools	Save 4,000 hours per year by automating reports currently produced manually, thereby giving customer services a chance to focus on their core business- servicing customers better.	■ Increased customer satisfaction due to more time spent on core value adding activities
3. Optimise Health & Safety practices	Use causal modelling to understand underlying drivers of non-compliant Health & Safety behaviour and recommend process changes to further improve UK Power Networks' excellent safety record.	■ Reduced count of Hazards, Near Misses and Incidents
4. Extracting information from Maps using Image Recognition	Extracting key elements of hand drawn maps by employing cutting edge image recognition approaches to extract relevant data and inform strategic network investment.	■ Increased count of types of digital information and percentage completeness of that information
5. Expand Centre of Excellence to include analysts from all business areas	Linking different pockets of analysts from across the business together into a cross functional Centre of Excellence. Identify opportunities in each area of the business to augment their performance by improving their in-house analytics capability. In addition, the Analytics Team will second individuals with enthusiasm for analytics, upskill them and provide continued support when they return to the business.	■ Have analytics specialists in each directorate within the business by the end of 2021

Appendix 1: Timeline view of our 2021 Digital Action Plan

	Q1			Q2			Q3			Q4		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Data												
Openly publish and share more of our data, prioritising based on stakeholder needs and removing barriers to publication through effective mitigating controls			●	●	●	●	●	●	●	●	●	●
Assess and openly publish our 'Open Data' maturity												●
Publish a comprehensive Open Data Strategy												●
Provide Cost Out insight across the organisation	●	●	●	●	●	●						
Extracting information from Maps using Image Recognition	●	●	●	●	●	●						
Implement a transparent Data Triage process	●	●	●	●	●	●	●	●	●	●	●	●
Drive continued improvement in the quality of our data	●	●	●	●	●	●	●	●	●	●	●	●
Play an active role in driving standardisation of data services and solutions across the sector	●	●	●	●	●	●	●	●	●	●	●	●
Commence digitisation of our Geospatial Network Records	●	●	●	●	●	●	●	●	●	●	●	●
Work towards delivering network data in an interoperable format							●	●	●	●	●	●
People												
Undertake an annual maturity assessment on our developing digital skills and attributes		●	●									
Enhance existing and add new (where required) training for all employees				●	●	●	●	●	●	●	●	●
Recruit new capabilities where significant gaps exist				●	●	●	●	●	●			
Grow our Digital Group and extend spokes out into core business areas							●	●	●	●	●	●
Optimise Health & Safety practices	●	●	●									
Expand Centre of Excellence to include analysts from all business areas	●	●	●	●	●	●	●	●	●	●	●	●
2-sided engagement online portal				●	●	●	●	●	●	●	●	●
Technology												
Improve access to our data for all consumers through our centralised data portals						●	●	●	●	●	●	●
Process Automation	●	●	●	●	●	●	●	●	●	●	●	●
Deliver cutting edge payment system						●	●	●	●	●	●	●
Deliver industry leading learning platform				●	●	●	●	●	●	●	●	●
Automate reporting and deliver self-serving analytics tools	●	●	●	●	●	●	●	●	●	●	●	●
User Communities												
Provide complete transparency of the data we hold							●	●	●	●	●	●
Online payments					●	●	●	●	●	●	●	●
Robotic process automation	●	●	●	●	●	●	●	●	●	●	●	●
Strategic Forecasting of load growth				●	●	●	●	●	●	●	●	●

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Registered in England and Wales No. 7290590

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